

UNITED STATES MARINE CORPS
Corporals Noncommissioned Officer Program

CPL 0307
Jun 04

STUDENT HANDOUT

Operational Risk Management

LEARNING OBJECTIVES:

1. TERMINAL LEARNING OBJECTIVES:

Given a situation, and with the aid of references, apply Operational Risk Management (ORM), per those references.

1. ENABLING LEARNING OBJECTIVES: With the aid of references, and per those references, identify the following:

1. Common terms used when discussing ORM.
1. Concept of ORM process.
1. The five steps of the ORM process.
1. The three application phases of the ORM process.
1. The four principles that comprise ORM.

OUTLINE

1. GENERAL:

As stated in NDP-1 (Naval Warfare Publication), "By its nature, the uncertainty of war invariably involves the acceptance of risk. Because risk is often related to gain, leaders weigh risks against the benefits to be gained from an operation." We rely on the judgment of individual commanders to balance the requirements of mission success with the inherent risks of military action. Naval leaders have always practiced risk management in their operational decision-making. However, the approach to risk, and the degree of success in dealing with that risk, has varied widely depending on the leader and his/her level of training and experience. The principles of Operational Risk Management can be taught and effectively applied throughout the Navy and Marine Corps to enhance the decision-making capabilities of our personnel. Many ORM techniques are already incorporated into our operational planning and decision-making processes. Some examples of how commanders and units evaluate and manage risk are:

- Evaluation and wargaming of different courses of action
- Establishment of mission go/no-go criteria
- Employment of maximum/minimum operating envelopes
- Use of mission confirmation briefings.

In addition to the above-mentioned techniques, this document has outlined a formal process, which may be applied when dealing with risk.

2. COMMON TERMS USED WHEN DISCUSSING ORM:

- Risk: An expression of possible loss in terms of severity and probability.
- Risk Assessment: The process of detecting hazards and assessing associated risks.
- Hazard: A condition that could potentially cause personal injury, death, property damage, or mission degradation.
- Operational Risk Management: The process of dealing with those risks associated with military operations. This includes risk assessment, risk decision-making and implementation of effective risk controls.

3. CONCEPT OF ORM PROCESS:

- Overview of the ORM process:
 - (1) The ORM process is a decision-making tool used by people at all levels to increase operational effectiveness. It assists personnel by enabling anticipation of hazards and reducing the potential for loss, thereby increasing the probability of a successful mission.
 - (2) It increases the ability to make informed decisions by providing the best baseline of knowledge and experience available.
 - (3) It minimizes risks to acceptable levels, commensurate with mission accomplishment. The amount of risk considered acceptable during war is much greater than what is considered acceptable in peace, but the process is the same. Applying the ORM process will reduce mishaps, lower costs, and provide more efficient use of resources.

4. THE FIVE STEPS OF THE ORM PROCESS:

a. The five-steps of the ORM process are as follows:

- (1) Identify Hazards. Hazard identification can be achieved by using a chart, outline, or graph to emphasize the major tasks for the upcoming operation (operational analysis).

Subsequently, the chart, outline, or graph, which lists all of the hazards associated with each task and possible causes, should be used to conduct a preliminary Hazard Analysis.

- (2) Assess Hazards. The associated degree of risk should be determined in terms of probability and severity for each hazard identified.
- (3) Make Risk Decisions. Risk control options are those measures, which can be used to eliminate or minimize the degree of risk. These options must be developed prior to making risk decisions. Controls must be selected, which will reduce the risk to a level consistent with successful mission accomplishment. This effort should start with the most serious risk. Once the control options have been assessed, it must be decided if the benefit of the operation outweighs the identified risk. If the risk does outweigh the benefit, or if assistance is required to implement controls, this must be communicated to higher authority in the chain of command.
- (4) Implement Controls. The following measures can be used to eliminate hazards or reduce the degree of risk. These are listed in the order of preference:
 - (a) Engineering controls use engineering methods to reduce risks by design, material selection, or substitution when technically or economically feasible.
 - (b) Administrative controls reduce risks through specific actions, such as:
 1. Providing suitable warnings, markings, placards, signs, and notices.
 2. Establishing written policies, program instructions, and standard operating procedures (SOP).
 3. Training personnel to recognize hazards and take appropriate precautionary measures.
 4. Limiting exposure to a hazard (by reducing the number of personnel/assets exposed to the asset or the duration of exposure).
 - (c) Personal protective equipment serves as a barrier between personnel and a hazard. It should be used when other controls do not reduce the hazard to an acceptable level.

- (5) Supervise. Follow up evaluations must be conducted to ensure the controls remain in place and have the desired effect. It is necessary to monitor for changes, which may require further ORM. Corrective action should be taken when necessary.

5. THE THREE APPLICATIONS OF THE ORM PROCESS:

The ORM process is based on three different applications. Each commander selects the appropriate application based upon the mission, the situation, the time available, and the proficiency level of his/her personnel and assets. Although it is preferable to perform an in-depth risk management process for all evolutions, the time and/or resources will not always be available. One of the objectives of ORM training is to develop sufficient proficiency in applying the process so that ORM becomes an automatic or intuitive part of the decision making process. Leaders should be able to employ the time-critical application of the ORM (described below) to make sound and timely decisions that facilitate decisive results and do not hinder the operational tempo. The three applications of the ORM process are described below.

- a. Time-critical application: is an “on-the-run” mental or oral review of the situation using the five-step process (described above) without recording the information. This application of the ORM is employed by experienced personnel to consider risk while making decisions in a time-compressed situation. Time critical is the normal application of the ORM process used during the execution phase of operations and training exercises, as well as, during the planning phase of crisis response scenarios. This application is particularly helpful when it becomes necessary to determine an appropriate course of action for an unplanned event, which occurs during the execution phase of a planned operation or a daily routine.
- b. Deliberate application: is the execution of the five-step process while planning an operation or evaluating procedures. This level uses primarily experience and brainstorming to identify hazards and develop controls, and is most effective when done in a group. Examples of deliberate applications include planning of upcoming operations, reviews of standard operating procedures, maintenance of training procedures, as well as, damage control/disaster response planning.
- c. In-depth application: is a methodical process containing a more comprehensive risk assessment than the other two applications (first two of five steps). It involves research of available data, use of diagrams and analysis tools, formal testing, and/or long term tracking of the hazards associated with the operation to identify and assess the hazards. It is used to thoroughly study the hazards and associated risk in a complex operation or system, or in a situation where the hazards are not well understood. Examples of in-depth applications include long term planning of complex operations, introduction of new equipment, materials and missions, development of tactics and training curricula and major system overhaul or repair.

6. THE FOUR PRINCIPLES THAT COMPRISE RISK MANAGEMENT:

- a. Accept risks when benefits outweigh the cost. Risk is involved in every mission. Risk is also related to gain; normally greater potential gain requires greater risk. Our naval tradition is built upon principles of seizing the initiative and taking decisive action. The goal of ORM is not to eliminate risk, but to manage the risk so that the mission can be accomplished with the minimum amount of loss.
- b. Accept no unnecessary risk. Take only risks, which are necessary to accomplish the mission.
- c. Anticipate and manage risk by planning. Risks are more easily controlled when they are identified early in the planning process.
- d. Make risk decisions at the right level. The leader directly responsible for the operation makes risk management decisions. Prudence, experience, judgment, intuition, and situational awareness of leaders directly involved in the planning and execution of the mission are critical elements in making effective risk management decisions. When the leader responsible for executing the missions determines that the risk associated with that mission is too high or goes beyond the commander's stated intent, he should seek additional guidance.

REFERENCES: OPNAVINST 3500.39
 MCO 3500.27
 DODINST 6500.27
 NDP 1 NAVAL WAREFARE PUBLICATION

APPENDIX (Scenario 1)

This appendix contains a scenario that will provide the opportunity to exercise the ORM process.

Scenario: In preparation for an amphibious exercise, a deck officer might use Operational Risk Management to plan for launching small boats. The steps below depict how the ORM would be utilized:

1) Step 1 - Identify Hazards.

a) Operational Analysis: The deck officer would assess how the following activities are currently conducted and identify possible hazards. .

- Muster deck watch section
- Brief
- Man launch positions
- Attach lines and Load boats
- Move boats over water and lower
- Detach lines and retrieve
- Small boats move away from ship
- Stow lines
- Muster deck watch section

b) Preliminary Hazard Analysis: For each step of the operational analysis any hazards, which might result in personnel injury/death, property damage or mission degradation must be isolated as well as their causes. The deck officer determines that the deck personnel sometimes lose control of the boats during launch.

Hazard causes:

- Personnel slips/falls Wet deck
- Gear adrift
- Rushing
- Time/position requirements Incomplete/Inaccurate
- Confused brief
- Boat overload inadequate training
- Crew complacency
- Improperly attached lines same as above
- Lost control of boats Material casualty (davit, (Resulting in death, crane or hardness failure)
- Injury, damage of High Sea state
- Delay/abort of launch) improper procedures
- (Winch, davit operation)
- Improper positioning
- (Boat crew and boat)
- Man overboard same as above
- Lines tangled/knotted same as above
- Improperly attached lines

- Small boats unable to break away from ship
 - Small boat engine failure
 - Suction effect from ship
- 2) Step 2 - Assess Hazards. Assess each hazard identified in terms of severity and probability of possible loss. For example, the deck officer might assess the hazard "Lost control of boats" and determine that given the factors isolated in Step 1 the probability is high and the severity is high as well.
 - 3) Step 3 - Make Risk Decisions.
 - a) Risk control options must be considered beginning with most serious risks first (lowest RAC). For example, some controls for the hazard of "lost control of boats" might include thorough equipment checkout prior to the exercise, review of key procedures during brief, practice launch of empty boats prior to exercise, stationing supervisor/observer to monitor proper position and procedures and wearing helmets.
 - b) It must be determined if the benefits outweigh the risk with the selected controls implemented. The deck officer decides the risk is acceptable with the above controls in place; however, he must coordinate with the captain to conduct the pre-exercise launch.
 - 4) Step 4 - Implement Controls.
 - a) The deck officer might draft a pre-exercise plan, which establishes a requirement to check the equipment, delineates key procedures to be briefed, schedules the practice launch and assigns supervisor responsibility. Existing applicable SOPs should be referenced.
 - 5) Step 5 - Supervise.
 - a) The activity is monitored for any changes, which might present new hazards. The deck officer ensures appropriate supervisors enforce established procedures and follow through with selected controls.
 - b) Controls must be adjusted if they are deemed ineffective.
 - c) After the operation, determine which controls were effective and ensure they are implemented for future evolutions.

APPENDIX (Scenario 2)

Scenario: In preparing for a 72 or 96-hour liberty period, ORM could prove to be a useful tool if departing the local area. The steps below depict how ORM would be used. This applies to automobiles as well as motorcycles. However, when applying it to motorcycles, there will be some variations. For further reading on the automobile or motorcycle policy in regards to the Marine Corps, read MCO5100.19D, which outlines the Marine Corps Traffic Safety Program.

1) Step 1- Identify Hazards.

Operational Analysis: Assess current activities and identify hazards associated with extended weekend liberty.

- Driver fatigue/sleepiness/departing without proper rest/driving long periods without resting
- Poor weather conditions
- Starting trip during peak traffic hours
- Distractions (conversations, children, map reading, radio, etc.)
- Driving while under influence
- Operating an unsafe vehicle
- Following too closely to other vehicles to include emergency vehicles
- Disobeying posted speed limit
- Slowing down to observe accident scene (“rubber necking”)
- Driving in another driver’s blind spot
- Carelessness about “necessary items” (maps, important phone numbers, highway assistance information, emergency items)
- Departing without conducting safety check of vehicle
- Driving at non peak hours (evening greater risk of falling asleep while driving)
- Not filling up with gas prior to departure, (increases chance of running out of gas before getting to a service station)
- Eating while driving (focus is on food and not safety of the road)
- Food or drink spills while driving
- Driving long periods, can create complacency or a lack of situational awareness
- Distractions like cellular phones, CDs or anything else, which may take your attention away increase the risks, associated with driving
- Fatigue due to poor planning and lack of rest prior to departure (sleep is the only thing that can combat fatigue)
- Child safety seat not used if applicable
- Use of chains in icy conditions.

2) Step-2 Assess Hazards. All of the vehicle hazards mentioned above pose an equally high degree of risk.

3) Step 3 - Make Risk Decisions. In vehicle operations, no unnecessary risk should ever be taken.

4) **Step 4 - Implement Controls.** The Safety Officer/NCO might draft a pre-exercise plan, which establishes a requirement to check the equipment, (vehicles) prior to departure on liberty. Existing applicable SOPs should be referenced. Provided below is an example of hazards and controls. Enclosure (1) provides an example of a vehicle checklist.

HAZARDS

CONTROL MEASURES

<p>1. Driver fatigue/sleepiness</p>	<p>AVOID DRIVING LATE AT NIGHT. Your body is used to sleeping during that time. Plan the trip and get proper rest prior to departure. If possible, have an additional driver to help break up the trip, and work a rotation, which will not cause you to drive to the point of fatigue. Schedule breaks during trip and set realistic goals for distances traveled. Road and traffic information can be obtained on the CA DOT Homepage (www.ca.gov/roadsandtraffic).</p>
<p>2. Poor weather conditions (fog, rain, snow, etc)</p>	<p>ENSURE THAT YOU HAVE PROPER EMERGENCY EQUIPMENT: snow chains, wipers, proper clothing, spare tire, jack, drinking water, etc. Avoid driving in fog if possible and remember it is illegal to drive with parking lights on. During periods of low visibility, due to in climate weather, it is important to slow down. Snow may cause you to use chains. It is in your best interest to know how to install them prior to needing them. The first sign of rain is when the roads are the most slippery. Prepare yourself for slowing down. During periods of darkness, obviously it is more difficult to see, so it is important to stay alert. Ensure the headlights are in working order.</p>
<p>3. Starting trip during peak traffic hours {rush hour}</p>	<p>START TRIP DURING NON-PEAK TRAFFIC HOURS. Non-rush hour.</p>
<p>4. Distractions { reading maps, music to loud, headsets, etc }</p>	<p>KEEP YOUR FOCUS ON DRIVING. Always keep eyes shifting from one side of the road to the other. Look at the big picture, and observe as much as you can that is in or close to your path, to include your gages. Keep your music low (your hearing may detect a hazard before your eyes do). Never wear headsets or earplugs. It is against the law. Read maps</p>

<p>5. Driving under the influence of alcohol {prescription drugs, or over-the- counter drugs }</p> <p>6. Operating an unsafe vehicle {faulty brakes, no tail lights, bald tires, etc }</p> <p>7. Disobeying posted speed limits {driving too fast for road conditions }</p> <p>8. Rubber necking {stopping or slowing down to observe an accident }</p>	<p>before your trip or have passengers read them during trip your attention must be on the road.</p> <p>DRIVING UNDER THE INFLUENCE IS AGAINST THE LAW. All medications, prescriptions or over the counter are potentially dangerous, because most cause drowsiness. Never mix medications unless directed by a doctor. Never take medications prescribed to someone else. Never mix alcohol with medications. Always remember, it is your responsibility to understand the effects of medications you take.</p> <p>IT IS UNLAWFUL TO OPERATE AN UNSAFE VEHICLE. It can cause danger to you, passengers as well as other motorists and pedestrians. At no time should you operate an unsafe vehicle. Enclosure (1) provides a checklist to identify potential safety hazards.</p> <p>SPEED LIMITS ARE POSTED FOR A REASON. All speed limits are based on ideal driving conditions. Driving faster than the posted speed limit, or than it is safe for current conditions, on any road is dangerous and illegal. High speed increases your stopping distance. The faster you go, the less time you have to avoid a hazard or accident. The force of a 60 mph crash isn't just twice as great as a 30 mph; it's four times as great!</p> <p>Rubber necking impedes traffic, which is illegal to do.</p>
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Step 5 - Supervise. The Staff of the activity will conduct vehicle inspections prior to extended liberty periods, to include instruction/evaluation of Junior NCOs. Controls must be adjusted if they are deemed ineffective. After liberty period, determine which controls were effective and ensure they are implemented for future evolutions.

SAFETY IS A CONCERN FOR ALL MARINES:

Always remember; never drive **angry**, **ill** or **upset**.
Never drive after **drinking** or using **drugs**.
Never drive with someone who is **impaired** or **intoxicated**.
Never let your **anger** affect your **driving** “road rage”
Always drive safe!

Enclosure (1)

VEHICLE INSPECTION CHECKLIST

DMV REQUIREMENTS

- ☐ Valid driver's license
- ☐ Current vehicle registration
- ☐ Current insurance

FUNCTIONS CHECK

	Yes	No	REMARKS
Horn			
Hazard lights			
Mirror			
Windshield			
Directional signals			
Tire pressure/tire wear			
Wipers			
Washer fluids			
Engine fluid levels			
Tail lights			
Engine belts			
Headlights			
Safety belts			
Brake light			
Spare tire			
Reverse lights			
Brake Pedal			
Safety equipment (emergency tools, flares, jack, wrench, flashlight)			

Vehicle owner_____

Date_____

Inspector_____

Date_____

MOTORCYCLE INSPECTION CHECKLIST

DMV REQUIREMENTS

- ☐ Valid driver's license (motorcycle endorsement)
- ☐ Current vehicle registration
- ☐ Current insurance

MARINE CORPS REQUIREMENTS ON/OFF BASE

- ☐ Completion certificate for motorcycle safety course
- ☐ Helmet (DOT, ANSI, Snell approved, with impact resistant goggles, or full face shield)
- ☐ Reflective vest (lime green, international orange, bright yellow)
- ☐ Hard sole shoes with heels
- ☐ Jacket or long sleeve shirt
- ☐ Full fingered gloves or mittens

FUNCTIONS CHECK

	Yes	No	REMARKS
Horn			
Mirrors			
Directional signals			
Tire pressure/tire wear			
Engine fluid levels			
Tail lights			
Headlights			
Brakes/Brake lights			
Safety equipment (emergency tools, etc)			

- When operating a motorcycle, perform all the safety steps listed above. In addition, ensure the operator possesses a current license for the size of the motorcycle (Engine CC) the operator is riding. For further information regarding motorcycle safety, refer to MCO 5100.19D

Vehicle owner_____

Date_____

Inspector_____

Date_____